DESCRIPTION

The AM4420 is the N-Channel logic enhancement mode power field effect transistor are produced using high cell density, This high density process is especially tailored to minimize on-state resistance.

These devices are particularly suited for low voltage application such as cellular phone and notebook computer power management and other batter powered circuits, and low in-line power loss are needed in a very small outline surface mount package.

The AM4420 is available in SOP8 Package

FEATURES

- 30V/13A, $R_{DS(ON)}$= 8mΩ@V_{GS}= 10V
- 30V/12A, $R_{DS(ON)}$= 12mΩ@V_{GS}= 4.5V
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- Available in SOP8 Package

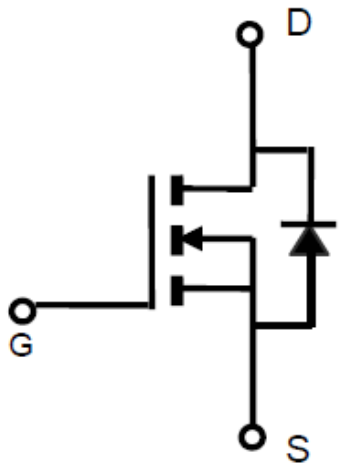
APPLICATION

- Power Management in Note book
- Portable Equipment
- DSC
- LCD Display inverter
- Battery Powered System
- DC/DC Converter

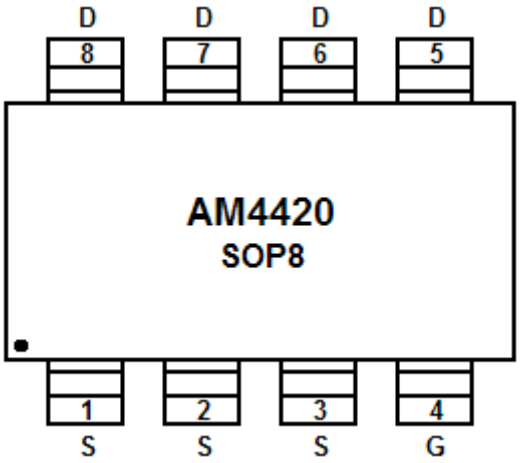
ORDERING INFORMATION

Package Type	Part Number	
SOP8	M8	AM4420M8R
		AM4420M8VR
Note	R: Tape & Reel V: Green Package	
AiT provides all Pb free products Suffix " V " means Green Package		

N CHANNEL MOSFET



PIN DESCRIPTION



Top View

Pin #	Symbol	Function
1	S	Source
2	S	Source
3	S	Source
4	G	Gate
5	D	Drain
6	D	Drain
7	D	Drain
8	D	Drain

ABSOLUTE MAXIMUM RATINGS

T_A = 25°C Unless otherwise specified

V_{DSS}, Drain-Source Voltage		30V
V_{GSS}, Gate-Source Voltage		±20V
I_D, Continuous Drain Current (T_J=150°C)	V_{GS}=10V	13A
I_{DM}, Pulsed Drain Current		45A
I_S, Continuous Source Current (Diode Conduction)		3.5A
P_D, Power Dissipation	T_A=25°C	2.5W
	T_A=70°C	1.6W
T_J, Operation Junction Temperature		-55/150°C
T_{STG}, Storage Temperature Range		-55/150°C

Stresses above may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated in the Electrical Characteristics are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

THERMAL INFORMATION

Parameter	Symbol	Max	Unit
Thermal Resistance-Junction to Ambient	$R_{\theta JA}$	80	°C/W

ELECTRICAL CHARACTERISTICS

T_A = 25°C Unless otherwise specified

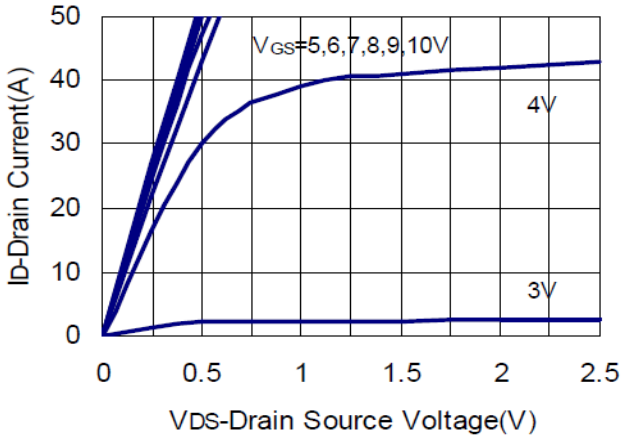
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Static Parameters						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_D=250μA	30	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250μA	1.0	-	2.5	V
Gate Leakage Current	I_{GSS}	V_{DS}=0V,V_{GS}=±20V	-	-	±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=24V,V_{GS}=0V	-	-	1	μA
		V_{DS}=24V,V_{GS}=0V T_J=70°C	-	-	25	
On-State Drain Current	$I_{D(ON)}$	V_{DS} ≧ 5V,V_{GS}=10V	25	-	-	A
Drain-source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V,I_D=13A	-	8	10	mΩ
		V_{GS}=4.5V,I_D=12A	-	12	14	
Source-Drain Diode						
Diode Forward Voltage	V_{SD}	I_S=2.3A,V_{GS}=0V	-	0.8	1.2	V
Dynamic Parameters						
Total Gate Charge	Q_g	V_{DS}=15V	-	16	24	nC
Gate-Source Charge	Q_{GS}	V_{GS}=10V	-	4.2	-	
Gate-Drain Charge	Q_{GD}	I_D=2A	-	2.5	-	
Input Capacitance	C_{iss}	V_{DS}=15V V_{GS}=0V f=1MHz	-	1350	-	pF
Output Capacitance	C_{oss}		-	285	-	
Reverse Transfer Capacitance	C_{rss}		-	150	-	
Turn-On Time	td(on)	V_{DD}=15V R_L=15Ω I_D=5A V_{GEN}=10V R_G=1Ω	-	15	20	nS
	tr		-	6	16	
Turn-Off Time	td(off)		-	20	40	
	tf		-	12	20	

NOTE: 1. Pulse test: pulse width <= 300us, duty cycle<= 2%
2. Static parameters are based on package level with recommended wire-bonding

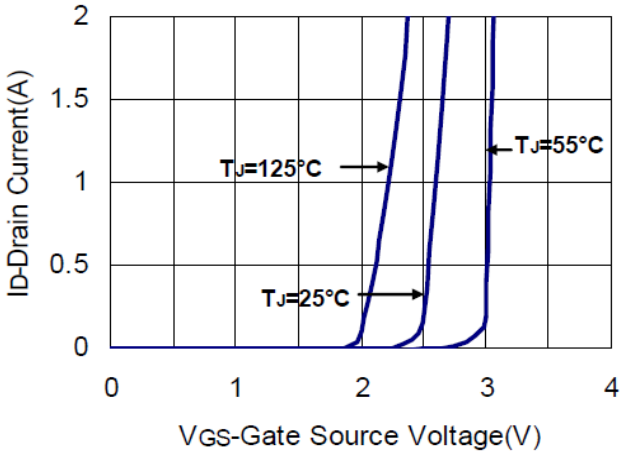
TYPICAL CHARACTERISTICS

T_A=25°C Unless specified

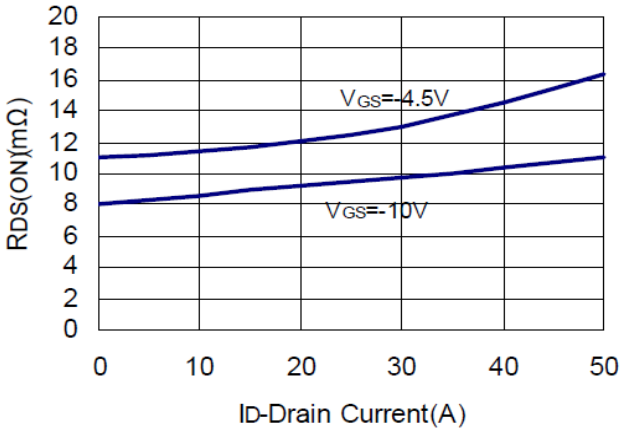
1. Output Characteristics



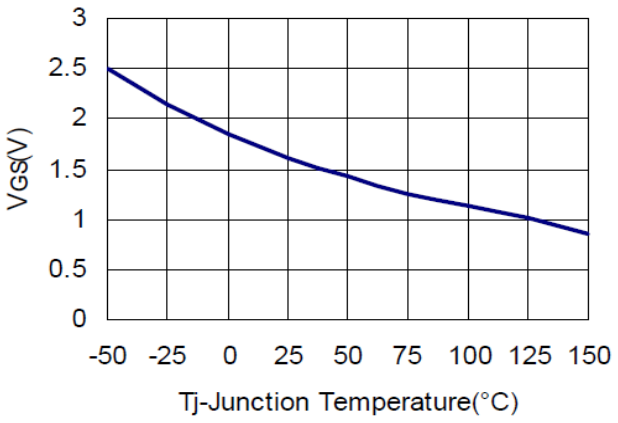
2. Transfer Characteristics



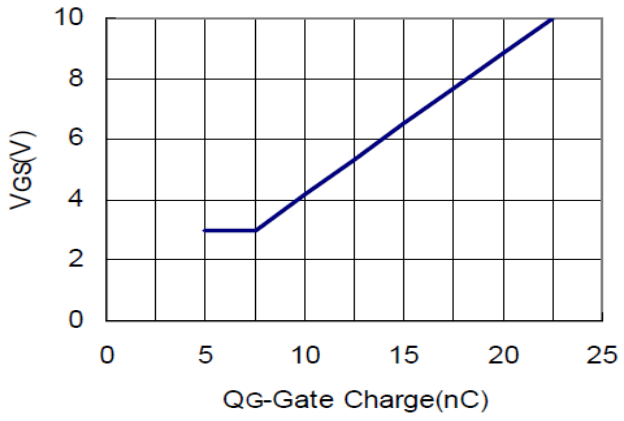
3. Drain Source On Resistance



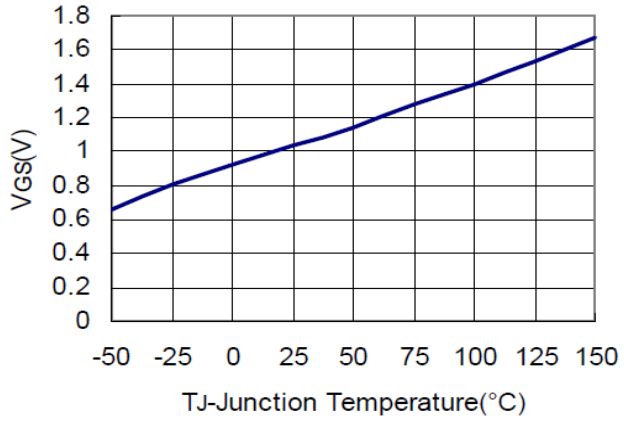
4. Gate Threshold Voltage



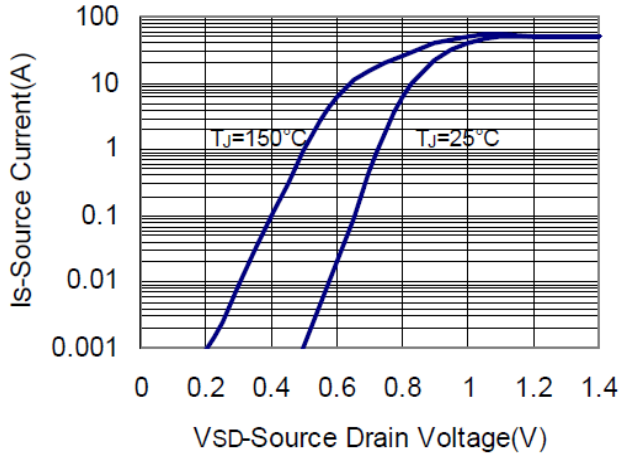
5. Gate Charge



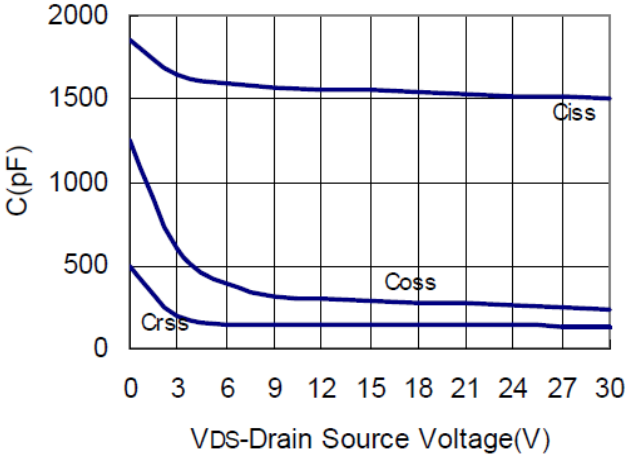
6. Drain Source On Resistance



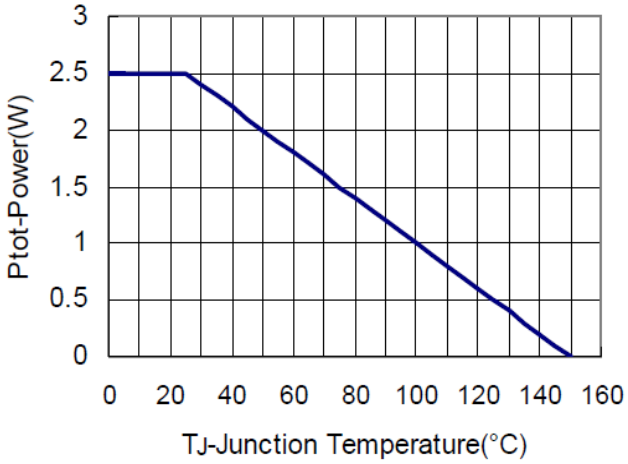
7. Source Drain Diode Forward



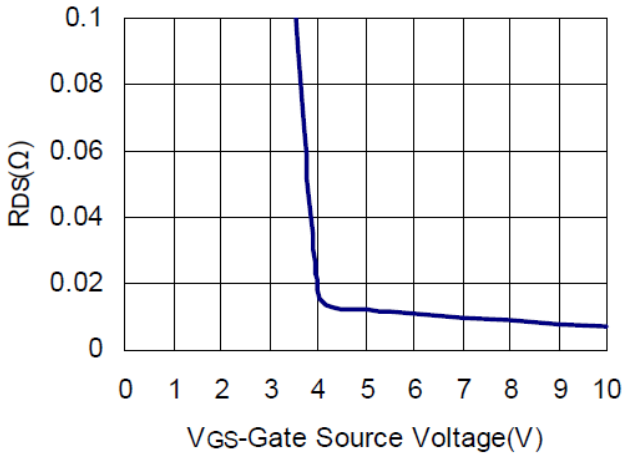
8. Capacitance



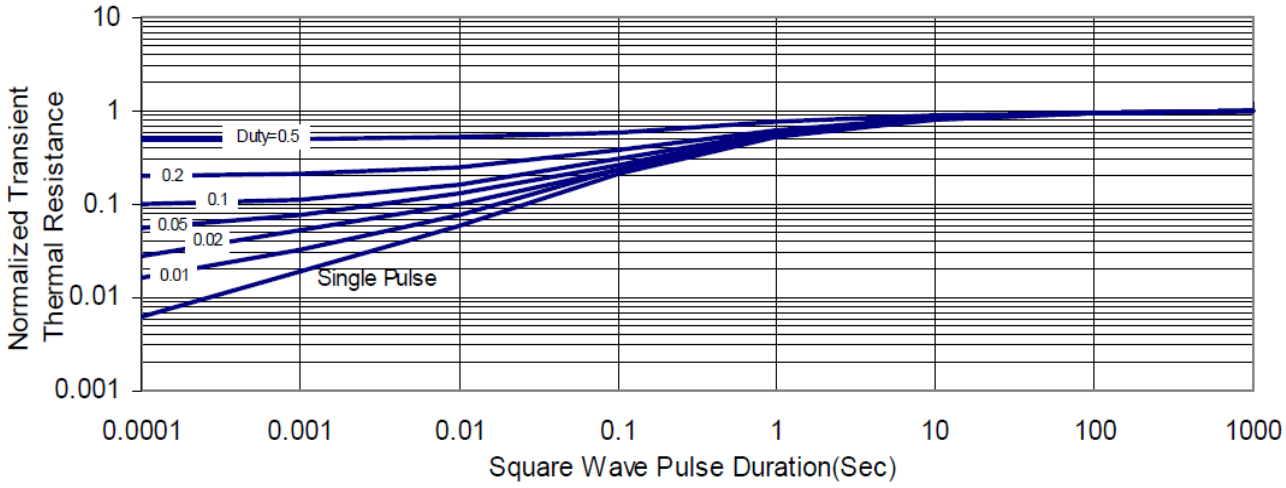
9. Power Dissipation



10. On Resistance VS Gate Source Voltage

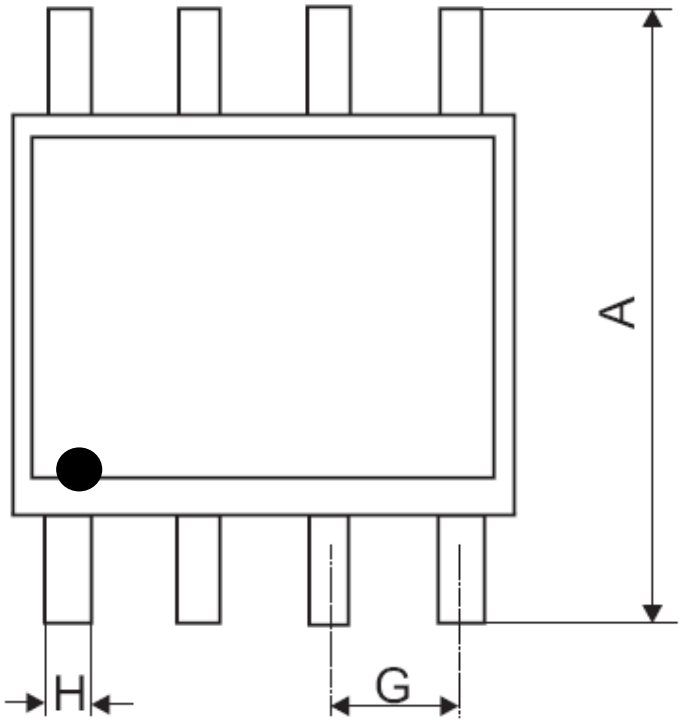


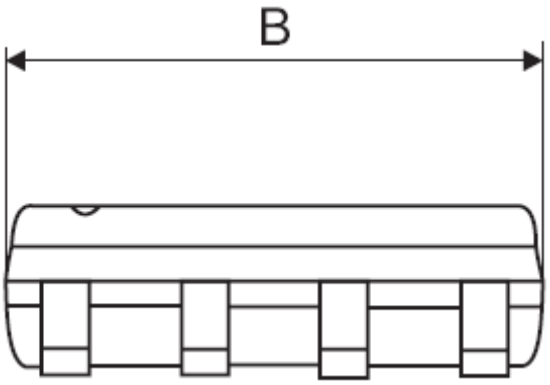
11. Thermal Transient Impedance

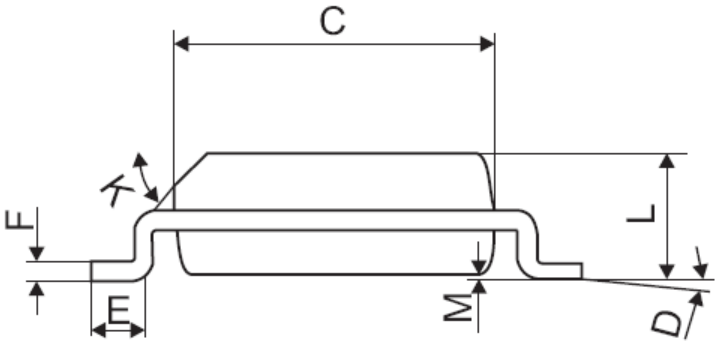


PACKAGE INFORMATION

Dimension in SOP8 Package (Unit: mm)







Symbol	Min	Max
A	1.40	1.75
A1	0.10	0.25
A2	1.30	1.50
B	0.33	0.51
C	0.19	0.25
D	4.80	5.30
E	3.70	4.10
e	-	-
H	5.79	6.20
L	0.38	1.27
y	-	0.10
θ	0°	8°

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